



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Dean L. Engelhardt et al.

Group Art Unit: 1807

Serial No. 08/479,997

Examiner: Not Yet Known

Filed: June 7, 1995

Prev. Exm'r: Amella Yarbrough, Ph.D.

Prev. Group Art Unit: 1807

Title: MODIFIED NUCLEOTIDES, METHODS OF
PREPARING AND UTILIZING AND
COMPOSITIONS CONTAINING SAME

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

HON. COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

Sir:

This Supplemental Information Disclosure Statement is filed in accordance with 37 C.F.R. §§1.56 and 1.97-1.98. The items listed on Form PTO-1449, a copy of which is enclosed, may be deemed to be pertinent to the above-identified application and are made of record to assist the Patent and Trademark Office in its examination of this application. The Examiner is respectfully requested to fully consider the items and to independently ascertain their teaching.

1. ☒ For each of the following items listed on the enclosed copy of Form PTO-1449 that is not in the English language, an English language translation of that item or a portion thereof or a concise explanation of the relevance of that item is enclosed: Exhibits 17 and 23
2. ☐ For each of the following items listed on the enclosed copy of form PTO-1449 that is not in the English language, a concise explanation of the relevance of that item is incorporated in the specification of the above-identified application.
3. ☐ Any copy of the items on the enclosed copy of Form PTO-1449 that is not enclosed with this Information Disclosure Statement was previously cited by or submitted to the Patent and Trademark Office in the prior ☐ Divisional or ☐ Continuation-In-Part application under 37 C.F.R. §1.60, U.S. Serial No. _____, filed _____.
4. ☒ No fee is due under 37 C.F.R. §1.17(p) for this Supplemental Information Disclosure Statement since it is being filed in compliance with:
 - ☐ 37 C.F.R. §1.97(b)(1), within three months of the filing date of the above-identified application.
 - ☐ 37 C.F.R. §1.97(b)(2), within three months of the date of entry into the national stage as set forth in §1.491 in an international application.
 - ☒ 37 C.F.R. §1.97(b)(3), before the mailing date of a first Office action on the merits. FURTHERMORE THESE REFERENCES WERE

Enz-5(D6)(C2)

EXPRESS MAIL CERTIFICATE	
"Express Mail" Label No.	EF436871668
Deposit Date	SEPTEMBER 18, 1995
I hereby certify that this paper and the attachments herein are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington DC 20231	
	SEPT 18
Special Agent in Charge	Post Office

PREVIOUSLY SUBMITTED AND ARE BEING SUBMITTED AGAIN AT
EXAMINER'S REQUEST.

5. ☐ No fee is due under 37 C.F.R. §1.17(p) for this Information Disclosure Statement since it is being filed in compliance with 37 C.F.R. §1.97(c), after the period specified in paragraph 4 above but before the mailing date of a final action or a Notice of Allowance (where there has been no prior final action), and is accompanied by one of the certifications pursuant to 37 C.F.R. §1.97(e) set forth in paragraph 9 below.
6. ☐ A fee is due under 37 C.F.R. §1.17(p) for this Information Disclosure Statement since it is being filed in compliance with 37 C.F.R. §1.97(c), after the period specified in paragraph 4 above but before the mailing date of a final action or a notice of allowance (where there has been no prior final action):
- ☐ A check in the amount of \$200.00 is enclosed in payment of the fee.
 - ☐ Charge the fee to Deposit Account No. 05-1135, Order No. ENZ-5 (D5)(C2). A DUPLICATE COPY OF THIS SHEET IS ATTACHED.
7. ☐ A fee is due under 37 C.F.R. §1.17(i)(1) for this Information Disclosure Statement since it is being filed in compliance with 37 C.F.R. §1.97(d), after the mailing date of a final action or a notice of allowance, whichever comes first, but before payment of the issue fee, and is accompanied by:
- a. one of the certification pursuant to 37 C.F.R. §1.97(e) set forth in paragraph 9 below; and
 - b. the attached petition requesting consideration of this Information Disclosure Statement; and
 - c. the fee due under 37 C.F.R. §1.17(i)(1) which is paid as set forth in paragraph 10 below.
8. ☐ A fee is due under 37 C.F.R. §1.17(i)(1) for this Information Disclosure Statement since it is being filed in compliance with:
- a. ☐ 37 C.F.R. §1.313(b)(3), after the issue fee has been paid and information cited in this Information Disclosure Statement may render at least one claim unpatentable and is accompanied by the attached Petition To Withdraw Application From Issue;
 - b. ☐ 37 C.F.R. §1.313(b)(5), after the issue fee has been paid and information cited in this Information Disclosure Statement is to be considered in a Continuation application upon abandonment of the instant application and is accompanied by the attached Petition To Withdraw Application From Issue.
 - c. ☐ The fee due under 37 C.F.R. §1.17(i)(1) is paid as set forth in paragraph 10 below.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Dean L. Engelhardt et al.)	
Serial No.	08/479,997)	Group Art Unit: 1807
Filed:	June 7, 1995)	Examiner: Not Yet Known
Title:	MODIFIED NUCLEOTIDES, METHODS OF PREPARING AND UTILIZING AND COMPOSITIONS CONTAINING SAME)	Prev. Ex'r: Amella Yarbrough, Ph.D. Prev. Group Art Unit: 1807

575 Fifth Avenue, 18th Floor
New York, New York 10017
September 18, 1995

FILED BY EXPRESS MAIL

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

**SUPPLEMENTAL INFORMATION DISCLOSURE
STATEMENT UNDER 37 C.F.R. §§1.56 & 1.97-1.98**

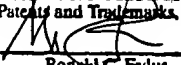
Dear Sirs:

This Supplemental Information Disclosure Statement follows Applicants' August 22, 1994 Information Disclosure Statement Under 37 C.F.R. §§1.56 & 1.97-1.98, filed in connection with the instant application's predecessor application, namely, U.S. Patent Application Serial No. 08/046,004 filed April 9, 1993.

Applicants through their attorney are responding to the Examiner's statement in the October 4, 1994 Office Action issued in the parent application that several references were not considered because no copy was furnished with the Information Disclosure Statement filed on August 22, 1994 (hereinafter the "Aug. 22, 1994 IDS"). Although it is believed that complete copies of the documents were in fact submitted with the Aug. 22, 1994 IDS, applicants, through their attorney, are responding to the Examiner's request by submitting herewith the below listed twenty-three (23) documents:

1. Torrence et al., "5-Alkylated Derivatives of 5-Hydroxy-2'-deoxyuridine as Potential Antiviral Agents. Anti-Herpes Activity of 5-Propynyloxy-

Enz-5(D6)(C2)

EXPRESS MAIL CERTIFICATE	
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	SEPT 18 1995
Ronald C. Feltus	Date

Dean L. Engelhardt et al.

Serial No.: 08/479,997

Filed: June 7, 1995

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Under 37 C.F.R. §§1.56 & 1.97-1.98 - September 18, 1995)

2'deoxyuridine," J. Med. Chem., 21:228-231 (1978) [Exhibit 1] {previously Exhibit 7};

2. Michelson, "Synthesis Of Nucleotide Anhydrides By Anion Exchange," Biochem. Biophys. Acta., 91:1-13 (1964) [Exhibit 2] {previously Exhibit 8};
3. Cech et al. "A facile synthesis of 5-(perfluoroalkyl)-pyrimidines," Nucleic Acids Research., 2:2183-2192 (1979) [Exhibit 3] {previously Exhibit 9};
4. Bleackley et al., "The preparation of 5-cyanouracil and 5-cyano-2'deoxyuridine from the corresponding 5-iodo derivative and cuprous cyanide," Nucleic Acids Research., 2:683-690 (1975) [Exhibit 4] {previously Exhibit 11};
5. Roberts et al., "Uridine and Cytidine Derivatives," J. Am. Chem. Soc. 74:668-669 (1952) [Exhibit 5] {previously Exhibit 12};
6. Bauman et al., "Rapid and High Resolution Detection of in situ Hybridisation to Polytene Chromosomes Using Fluorochrome-labeled RNA," Chromosoma, 84:1-18 (1982) [Exhibit 6] {previously Exhibit 13};
7. Bauman et al., "A new method for fluorescence microscopical localization of specific DNA sequences by in situ hybridization of fluorochrome-labelled RNA," Exp. Cell Res., 128:485-490 (1980) [Exhibit 7] {previously Exhibit 14};
8. Gerhard et al., "Localization of a Unique Gene by Direct Hybridization in situ," Proc. Natl. Acad. Sci. (USA), 78:3755-3759 (1981) [Exhibit 8] {previously Exhibit 15};
9. Miller, J., "Experiment 52, Assay of the lac Repressor by Binding to Operator," Experiments in Molecular Genetics, Cold Spring Harbor Laboratory pp. 367-370 (1972) [Exhibit 9] {previously Exhibit 16};
10. Ueda et al., "Conversion of Uridine Nucleotides to the 6-Cyano Derivatives: Synthesis of Orotidylic Acid (Nucleosides and Nucleotides)," J.

Carbohydr., Nucleosides, Nucleotides, 5:261-271 (1978) [Exhibit 10] (previously Exhibit 17);

11. Brunngraber et al., "Purification and Properties of a Nucleoside Phosphotransferase from Carrot," J. Biol. Chem., 242:4834-4840 (1967) [Exhibit 11] (previously Exhibit 18);
12. Wilchek et al., "Modification of the Carboxyl Groups of Ribonuclease by Attachment of Glycine or Alanylglycine," Biochemistry, 6:247-252 (1967) [Exhibit 12] (previously Exhibit 19);
13. Monod et al., "On the Nature of Allosteric Transitions: A Plausible Model," J. Mol. Biol., 12:88-118 (1965) [Exhibit 13] (previously Exhibit 22);
14. Pastan et al., "Cyclic Adenosine Monophosphate in Bacteria," Science, 169:339-344 (1969) [Exhibit 14] (previously Exhibit 23);
15. Gilbert et al., "The Nucleotide Sequence of the lac Operator," Proc. Natl. Acad. Sci. (USA), 70:3581-3584 (1973) [Exhibit 15] (previously Exhibit 24);
16. Carrico et al., U.K. Patent Application No. GB 2 040 943 A, published September 3, 1980 [Exhibit 16] (previously Exhibit 39);
17. Japanese Patent No. 57-42632, issued March 1986 [Exhibit 17] (previously Exhibit 69);
18. Japanese Patent 61-103824, issued May 1986 [Exhibit 18] (previously Exhibit 70);
19. Kourilsky et al., PCT Application No. WO 83/02276, published July 7, 1983 [Exhibit 19] (previously Exhibit 87);
20. Scherberg, U.S. Patent No. 4,260,737, issued April 7, 1981 [Exhibit 20] (previously Exhibit 90);

21. Salam et al., "Synthesis of Nucleoside 5'-(β -D-Glucopyranosyl Monophosphates) by the Sugar Ortho Ester Route," Carbohydrate Research, 102:139-146 (1982) [Exhibit 21] (previously Exhibit 95);
22. Kang, European Patent Application Publication No. 0 061 761 A1, published October 6, 1982 [Exhibit 22] (previously Exhibit 99);
23. Sela et al., German Patent Application No. DE-A-25-07-901, published September 10, 1970 [Exhibit 23] (previously Exhibit 100);

Three documents cited in the Aug. 22, 1994 IDS continue to be unavailable. These documents are listed below:

1. Kropinski et al., Gen. Virol., 6:85 (1970) (previously submitted as Exhibit 4 to the Aug. 22, 1994 IDS, referenced above);
2. Bhat, Syn. Proc. in Nucleic Acid Chem., Vol. I, p. 521 (1968) (previously Ex. 6); and
3. Caruthers, Second Annual Congress for Recombinant DNA Research, Los Angeles, CA (1982) (previously Exhibit 27).

Applicants attorney and his legal assistant are continuing their efforts to obtain these documents and are hopeful that they will be available to the Examiner in the near future.

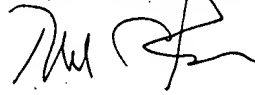
A completed Form PTO-1449 listing the above-submitted documents is also attached hereto as Exhibit 24 in order to ensure the Examiner has properly considered each of these documents.

Applicants believe that there is no fee due under 37 C.F.R. §1.17(p) for filing this Supplemental Information Disclosure Statement because these documents were previously submitted to the Examiner who indicated in a subsequent

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Office Action that copies were not available. However, in the event that any fee(s) is due, the Patent and Trademark Office is hereby authorized to charge the amount of any and all fees which may be due in connection with this Supplemental IDS to Deposit Account No. 05-1135, or to credit any overpayment thereto.

Respectfully submitted,



Ronald C. Fedus
Registration No. 32,567
Attorney for Applicants

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Enz-5(D6)(C2)

Form PTO-1449 U.S. Department of Commerce (REV. 8-83) Patent and Trademark Office INFORMATION DISCLOSURE CITATION (use several sheets if necessary)	Atty. Docket No. Enz-5 (D6)(C2)	Serial No. 08/047,997
	Applicants: Dean L. Engelhardt et al.	
	Filed: June 7, 1995	Group: 1807

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER								DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPRO- PRIATE
	4	2	6	0	7	3	7		04/07/81	Scherberg			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER								DATE	COUNTRY	CLASS	SUB CLASS	TRANS- LATION	
														YES	NO
	2	0	4	0	9	4	3	A	9/3/80	UK					
	5	7	4	2	6	3	2		3/86	Japan					
	6	1	1	0	3	8	2	4	5/86	Japan					
	8	3	0	2	2	7	6		7/7/83	PCT					
	0	0	6	1	7	6	1	A1	10/6/82	EP					

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	Torrence et al., <u>J. Med. Chem.</u> 21:228-231 (1978)
	Michelson, <u>Biochem. Biophys. Acta</u> 91:1-13 (1964)
	Cech et al., <u>Nucleic Acids Research</u> 2:2183-2192 (1979)
	Bleackley et al., <u>Nucleic Acids Research</u> 2:683-690 (1975)
	Roberts et al., <u>J. Am. Chem. Soc.</u> 74:668-669 (1952)
EXAMINER	DATE CONSIDERED
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Form PTO-1449, U.S. Department of Commerce (REV. 8-83) Patent and Trademark Office INFORMATION DISCLOSURE CITATION (use several sheets if necessary)	Atty. Docket No. Enz-5 (D6)(C2)	Serial No. 08/4479,997
	Applicants: Dean L. Engelhardt et al.	
	Filed: June 7, 1995	Group: 1807

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPRO- PRIATE

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANS- LATION	
						YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	Brunngraber et al., <u>J. Biol. Chem.</u> 242:4834-4840 (1967)
	Wilchek et al., <u>Biochemistry</u> 6:247-252 (1967)
	Monod et al., <u>J. Mol. Biol.</u> 12:88-118 (1965)
	Pastan et al., <u>Science</u> 169:339-344 (1969)
	Gilbert et al., <u>PNAS (USA)</u> 70:3581-3584 (1973)
EXAMINER	DATE CONSIDERED
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

